



Docket No.:
50767/P037US/10112692
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jian Chen, et al.

Application No.: 10/038,102
Filed: January 2, 2002
Group Art Unit: 1754
Examiner: Not Yet Assigned

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on the date shown below.

Dated: April 11, 2002

Signature: Gail Miller
(Gail Miller)

For: DIRECTIONAL ASSEMBLY OF CARBON
NANOTUBE STRINGS

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
Washington, DC 20231

Dear Sir:

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that ~~the information be expressly considered during the prosecution of this application, and that~~ the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed within three months of the U.S. filing date OR within three months of the date of entry of the national stage of a PCT application as set forth in 37 CFR 1.97(b), whichever event occurs last. No certification or fee is required.

A copy of each reference on PTO/SB/08 is attached.

A concise explanation of relevance of the items listed on form PTO/SB/08 is:

[x] not given

- ☐ given for each listed item
- ☐ given for only non-English language listed items
- ☐ in the form of an English language copy of a Search Report from a foreign patent office, issued in a counterpart application, which refers to the relevant portions of the references

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR 1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 06-2380.

Dated: April 11, 2002

Respectfully submitted,

By

Jody C. Bishop

Registration No.: 44,034

FULBRIGHT & JAWORSKI L.L.P.

2200 Ross Avenue, Suite 2800

Dallas, Texas 75201

(214) 855-8007

(214) 855-8200 (Fax)

Attorneys for Applicant



PTO/SB/08A (10-01)

Approved for use through 10/31/2002.OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

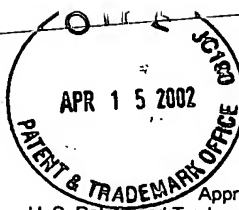
Substitute for form 1449A/PTO				C mplete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/038,102
				Filing Date	January 2, 2002
				First Named Inventor	Jian Chen
				Art Unit	1754
				Examiner Name	Not Yet Assigned
Sheet	1	of	3	Attorney Docket Number	50767/P037US/10112692

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A	5,482,601	01/09/1996	Ohshima et al.	
	B	5,753,088	05/19/1998	Oik	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				

¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART—NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C	CHEN, JIAN et al., "Room-Temperature Assembly of Directional Carbon Nanotube Strings," <i>J. Am. Chem. Soc.</i> , 124, 758-759 (2002)..	
	D	IIIJIMA, SUMIO et al., "Structural flexibility of carbon nanotubes," <i>J. Chem. Phys.</i> 104 (5) 1996, 2089-2092.	
	E	MARTEL, RICHARD et al., "Rings of single-walled carbon nanotubes," <i>NATURE</i> , Vol. 398, 1999, 299.	
	F	FRANKLIN, NATHAN et al., "An Enhanced CVD Approach to Extensive Nanotube Networks with Directionality," <i>Adv. Mater.</i> 2000 12, 890-894.	
	G	ZHANG, YUEGANG et al., "Electric-field-directed growth of aligned single-walled carbon nanotubes," <i>Applied Physics Letters</i> , Vol. 79, Number 19, 5 Nov. 2001.	
	H	LIU, JIE et al., "Controlled deposition of individual single-walled carbon nanotubes on chemically functionalized templates," <i>Chemical Physics Letters</i> 303 (1999) 125-129.	
	I	BAHR, JEFFREY L. et al., "Dissolution of small diameter single-wall carbon nanotubes in organic solvents?" <i>Chem. Commun.</i> , 2001, 193-194.	
	J	CHEN, JIAN et al., "Dissolution of Full-Length Single-Walled Carbon Nanotubes," <i>J. Phys. Chem. B</i> , 2001, 105, 2525-2528.	
	K	BOUL, P.J. et al., "Reversible sidewall functionalization of buckytubes," <i>Chemical Physics Letters</i> 310 (1999) 367-372.	
	L	O'CONNELL, MICHAEL J., et al., "Reversible water-solubilization of single-walled carbon nanotubes by polymer wrapping,"	
	M	SUN, YA-PING et al., "Soluble Dendron-Functionalized Carbon Nanotubes: Preparation, Characterization, and Properties," <i>Chem. Mater.</i> 2001, 13, 2864-2869	
	N	AUSMAN, KEVIN D. et al., "Organic Solvent Dispersions of Single-Walled Carbon Nanotubes: toward Solutions of Pristine Nanotubes," <i>J. Phys. Chem B</i> 2000, 104, 8911-8915.	



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031
U. S. Patent and Trademark Office: U. S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO		C m p l t e i f K n w n	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/038,102
		Filing Date	January 2, 2002
		First Named Inventor	Jian Chen
		Group Art Unit	1754
		Examiner Name	Not Yet Assigned
Sheet		of	3
		Attorney Docket Number	50767/P037US/10112692

O	DALTON, A.B. et al., "Selective Interaction of a Semiconjugated Organic Polymer with Single-Wall Nanotubes," <i>J. Phys. Chem. B</i> 2000, 104, 10012-10016.
P	STAR, ALEXANDER et al., "Preparation and Properties of Polymer-Wrapped single-Walled Carbon Nanotubes," <i>Angew. Chem. Int. Ed.</i> 2001, 40, 1721-1725.
Q	CHEN, ROBERT J. et al., "Noncovalent Sidewall Functionalization of Single-Walled Carbon Nanotubes for Protein Immobilization," <i>J. Am. Chem. Soc.</i> 2001, 123, 3838-3839
R	BAHR, JEFFREY L. et al., "Functionalization of Carbon Nanotubes by Electrochemical Reduction of Aryl Diazonium Salts: A Bucky Paper Electrode," <i>J. Am. Chem. Soc.</i> 2001, 123, 6536-6542.
S	SCHLITTLER, R.R. et al., "Single Crystals of Single-Walled Carbon Nanotubes Formed by Self-Assembly," <i>Science</i> 2001, 292, 1136-1139.
T	SMITH, BRIAN W. et al., "Formation mechanism of fullerene peapods and coaxial tubes: a path to large scale synthesis," <i>Chem. Phys. Lett.</i> 2000, 321, 169-174.
U	CRAIGHEAD, H.G., "Nanoelectromechanical Systems," <i>Science</i> 2000, 290, 1532-1535.
V	BAUGHMAN, Ray H. et al., "Carbon Nanotube Actuators," <i>Science</i> 1999, 284, 1340-1344.
W	KONG, JING et al., "Nanotube Molecular Wires as Chemical Sensors," <i>Science</i> 2000, 287, 622-625
X	COLLINS, Philip G. et al., "Extreme Oxygen Sensitivity of Electronic Properties of Carbon Nanotubes," <i>Science</i> 2000, 287, 1801-1804.
Y	SRIVASTAVA, Deepak et al., "Predictions of Enhanced Chemical Reactivity at Regions of Local Conformational Strain on Carbon Nanotubes: Kinky Chemistry," <i>J. Phys. Chem. B</i> 1999, 103, 4330-4337.
Z	TOMBLER, THOMAS W. et al., "Reversible electromechanical characteristics of carbon nanotubes under local-probe manipulation," <i>Nature</i> 2000, 405, 769-772.
AA	DERYCKE, V. et al., "Carbon-Nanotube Inter- and Intramolecular Logic Gates," <i>Nano Lett.</i> 2001, 1, 453-456.
BB	BACHTOLD, ADRIAN et al., "Logic Circuits with Carbon Nanotube Transistors," <i>Science</i> 2001, 294, 1317-1320.
CC	BANHART, FLORIAN, "The Formation of a Connection between Carbon Nanotubes in an Electron Beam," <i>Nano Lett.</i> 2001, 1, 329-332.
DD	TANG, Z.K. et al., "Superconductivity in 4 Angstrom Single-Walled Carbon Nanotubes," <i>Science</i> 2001, 2462-2465.
EE	COLLINS, PHILIP G. et al., "Engineering Carbon Nanotubes and Nanotube Circuits Using Electrical Breakdown," <i>Science</i> 2001, 292, 706-709.
FF	KIM, ENOCH et al., "Micromolding in Capillaries: Applications in Materials Science," <i>J. Am. Chem. Soc.</i> 1996, 118, 5722-5731.
GG	MESSER, BENJAMIN et al., "Microchannel Networks for Nanowire Patterning," <i>J. Am. Chem. Soc.</i> 2000, 122, 10232-10233.
HH	HUANG, YU et al., "Directed Assembly of One-Dimensional Nanostructures into Functional Networks," <i>Science</i> 2001, 291, 630-633.
II	YAKOBSON, BORIS et al., "Fullerene Nanotubes: C _{1,000,000} and Beyond," <i>Amer. Scientist</i> , 1997, 85, 324-337.
JJ	RINZLER, A.G. et al., "Large-scale purification of single-wall carbon nanotubes: process, product, and characterization," <i>Appl. Phys. A</i> 1998, 67, 29-37.
KK	JOURNET, C. et al., "Large-scale production of single-walled carbon nanotubes by the electric-arc technique," <i>NATURE</i> , 1997, 388, 756-758
LL	JOURNET, C. et al., "Production of carbon nanotubes," <i>Appl. Phys. A</i> 1998, 67, 1-9.
MM	NIKOLAEV, PAVEL et al., "Gas-phase catalytic growth of single-walled carbon nanotubes from carbon monoxide," <i>Chem. Phys. Lett.</i> 1999 313, 91-97.



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031
U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known			
		Application Number	10/038,102		
		Filing Date	January 2, 2002		
		First Named Inventor	Jian Chen		
		Group Art Unit	1754		
		Examiner Name	Not Yet Assigned		
Sheet		of	3	Attorney Docket Number	50767/P037US/10112692

	NN	FRANKLIN, Nathan R. et al., "An Enhanced CVD Approach to Extensive Nanotube Networks with Directionality," <i>Adv. Mater.</i> 2000, 12, 890-894.	
	OO	DRESSELHAUS, M.S. et al., <i>Science of Fullerenes and Carbon Nanotubes</i> , 1996, San Diego: Academic Press, 901-906.	
	PP	MATTSON, MARK P. et al., "Molecular Functionalization of Carbon Nanotubes and Use as Substrates for Neuronal Growth," <i>J. Molecular Neuroscience</i> , 2000, 14, 175-182	
	QQ	GERDES, S. et al., "Combining a carbon nanotube on a flat metal-insulator-metal nanojunction," <i>Europhys. Lett.</i> 1999 48 (3) 292-298.	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.